



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/823,770

04/14/2004

Mineo Koyama

100725-00123

4709

4372 7590 03/24/2008  
ARENT FOX LLP  
1050 CONNECTICUT AVENUE, N.W.  
SUITE 400  
WASHINGTON, DC 20036

EXAMINER

KRAUSE, JUSTIN MITCHELL

ART UNIT

PAPER NUMBER

3682

NOTIFICATION DATE

DELIVERY MODE

03/24/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DCIPDocket@arentfox.com  
IPMatters@arentfox.com  
Patent\_Mail@arentfox.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/823,770	<b>Applicant(s)</b> KOYAMA ET AL.	
	<b>Examiner</b> JUSTIN KRAUSE	<b>Art Unit</b> 3682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/9/07</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 19, 2007 has been entered.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1-15 rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui (US 2003/0068110) in view of Bower (US Patent 1,170,733).

Matsui discloses a bearing having a resin cage with a plurality of cylindrical rollers, the dimensions of the radii of the corners of the cage pockets (r), the minimum dimension of the inner diameter side of the annulus (d), and the thickness of the column (t) are defined by a function (paragraph 0061), and the stress concentration is variable dependent on the size of the roller and the variables r,d, and t. Combinations

of variables which satisfy the relationships of Matsui, also satisfy the claimed relationships between  $r$ ,  $k_1$ ,  $k_2$ ,  $r_1$ ,  $w_5$ ,  $Z$  and  $\Phi d_1$ .

Matsui does not disclose a pair of tongues extending radially away from a base, each tongue of the pair being connected to a relatively planar bottom surface disposed between the pair of tongues by an arcuate surface disposed between each tongue and end of the relatively planar surface.

Bower teaches a pair of tongues (Fig 2) extending radially away from a base (K) for the purpose of spacing and retaining the rolling members. (Page 2, lines 10-14).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Matsui to include tongues for the desired purpose of spacing and retaining the rollers as taught by Bower.

Regarding claims 10 and 13, Matsui discloses raised contact surfaces on the end surface.

Regarding claims 11 and 14, Bower discloses the guide surface as claimed (fig 2).

Regarding claims 12 and 15, the inner lateral surfaces of each tongue are connected by a bottom surface on an outer surface of the base (fig 2).

Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murai (US Patent 6,955,476) in view of Bower.

Murai discloses a bearing having a resin cage with a plurality of cylindrical rollers and states that the radius of curvature of the corners of the pockets can be modified

and formed into any suitable configuration which can relax the stress generated from the contact of the rolling element and improve lubricating conditions (col 4, lines 27-33). Murai additionally discloses that the minimum width of the side plate at the recess should be set as large as possible to increase its strength (Col 4, lines 61-63).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Murai and optimize the relationships between  $r$ ,  $Lw$ ,  $k_1$ ,  $k_2$ ,  $r_1$ ,  $w_5$ ,  $Z$  and  $\Phi d_1$  through routine experimentation, to achieve the desired stress concentration levels for the intended use and functionality of the resin retainer.

Murai does not disclose a pair of tongues extending radially away from a base, each tongue of the pair being connected to a relatively planar bottom surface disposed between the pair of tongues by an arcuate surface disposed between each tongue and end of the relatively planar surface.

Bower teaches a pair of tongues (Fig 2) extending radially away from a base (K) for the purpose of spacing and retaining the rolling members. (Page 2, lines 10-14).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Matsui to include tongues for the desired purpose of spacing and retaining the rollers as taught by Bower.

Regarding claims 10 and 13, both Murai discloses raised contact surfaces on the end surface.

Regarding claims 11 and 14, Bower discloses the guide surface as claimed (fig 2).

Regarding claims 12 and 15, the inner lateral surfaces of each tongue are connected by a bottom surface on an outer surface of the base (fig 2).

***Response to Arguments***

Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUSTIN KRAUSE whose telephone number is (571)272-3012. The examiner can normally be reached on Monday - Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. K./  
Examiner, Art Unit 3682

/Richard WL Ridley/

Application/Control Number: 10/823,770

Page 6

Art Unit: 3682

Supervisory Patent Examiner, Art Unit 3682